ABSTRACT SUBMISSION

Title: Study of High Pressure and Temperature Effects on Heather Honey During Storage: Electronic Tongue and Physicochemical Properties

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Text Abstract

Honey is a natural sweet substance produced by Apis mellifera, which has great potential to serve as a natural food antioxidant. The physicochemical quality criteria of honey are well specified by the European Legislation (EC Directive 2001/110). The quality properties of honey can be diminished by the influence of heating. As an alternative to the conventional thermal pasteurization, non-thermal high pressure processing (HPP) has potential to produce safe food with similar characteristics to the raw unprocessed foods. The aim of this study was to investigate the effect of HPP (725 MPa for 10 minutes) and HPP with temperature (725 MPa for 10 minutes at 50 °C) on physicochemical properties (moisture, pH, electrical conductivity, free acidity, diastase activity and hydroxymethylfurfural content) of a heather honey in comparison with thermal treatment (75 °C for 5 minutes) and unprocessed honey. The effect of storage (6 months) in processed and unprocessed samples was also investigated. The results showed significant differences in some physicochemical parameters, for instance, the hydroxymethylfurfural content, an indicator of honeys' freshness that depends on several factors, such as temperature, time of heating and storage conditions. An electronic tongue (ET) with lipidic membranes was used to evaluate the differences between all honey groups. A linear discriminant analysis to the ET results showed that the processed and unprocessed honey samples at day 0 (when treatments were applied) and after the storage have matrix differences that allows a complete separation of groups. The correlation between physicochemical and electronic tongue data showed the advantages of this data fusion.

App Yes

Approval Confirm

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